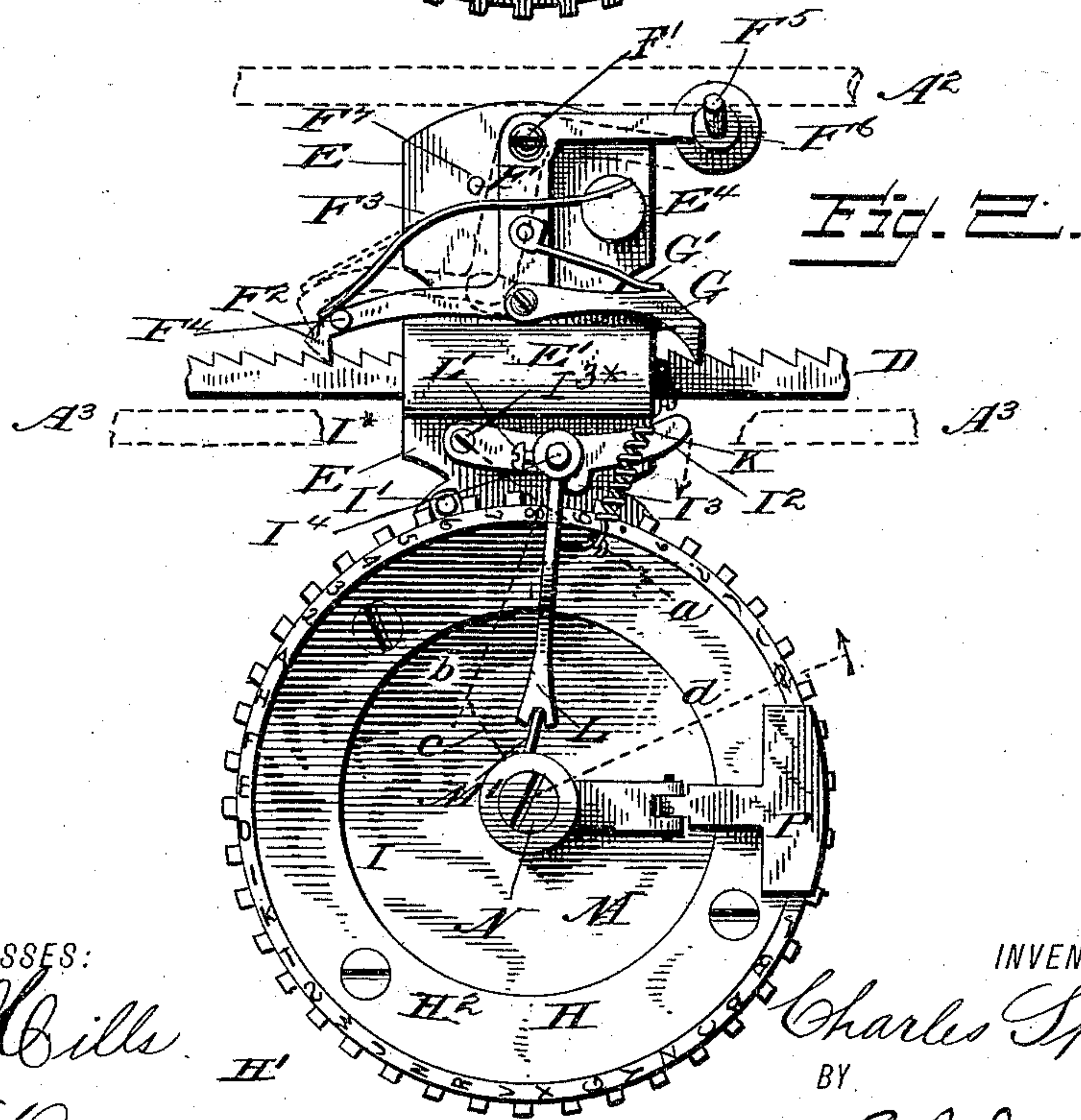
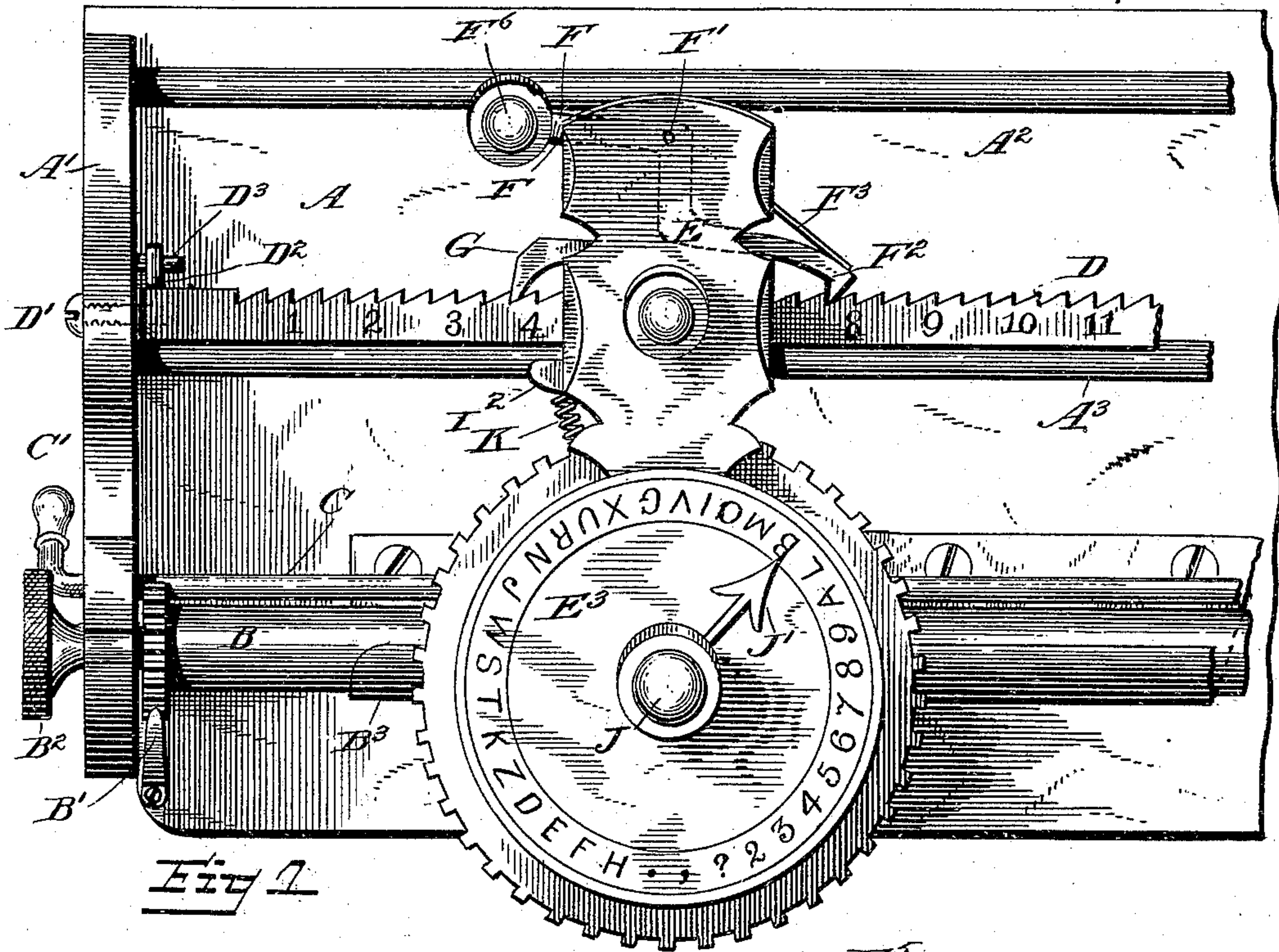


C. SPIRO.  
TYPE WRITING MACHINE.

No. 344,143.

Patented June 22, 1886.



WITNESSES:  
*S. C. Hills*  
*Wm. S. Duwall*

INVENTOR  
*Charles Spiro,*  
BY  
*E. B. Stocking*  
ATTORNEY

(No Model.)

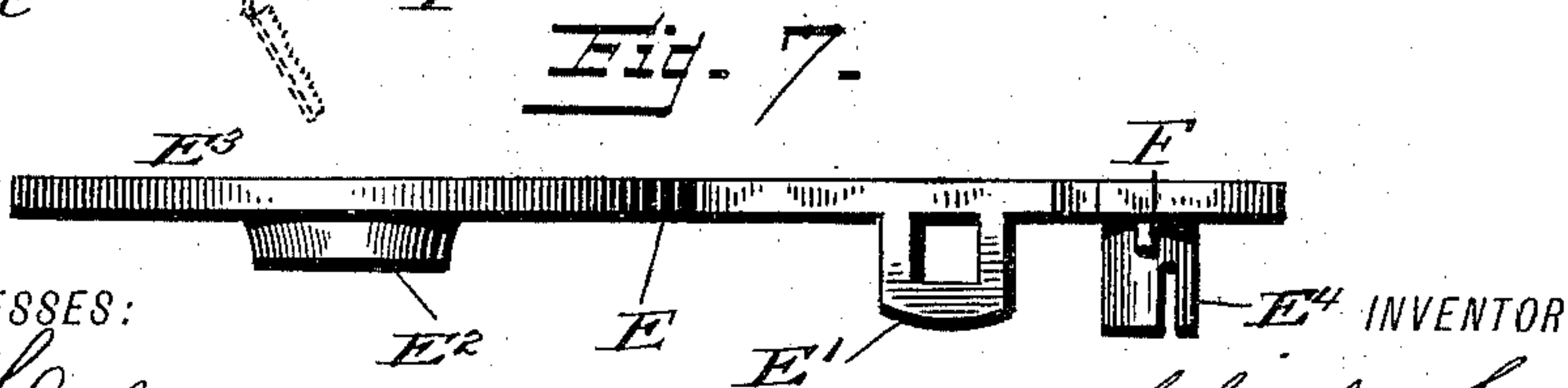
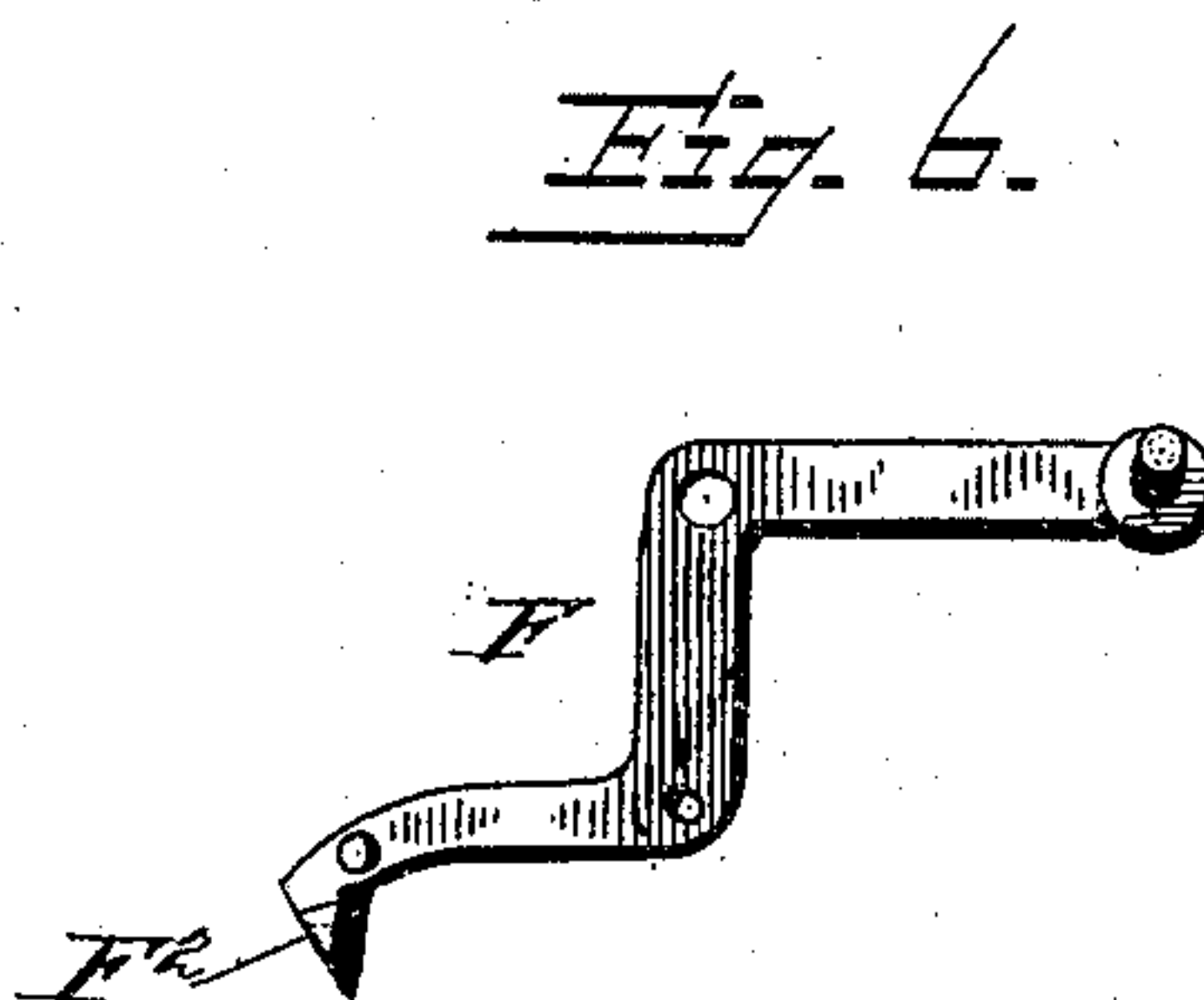
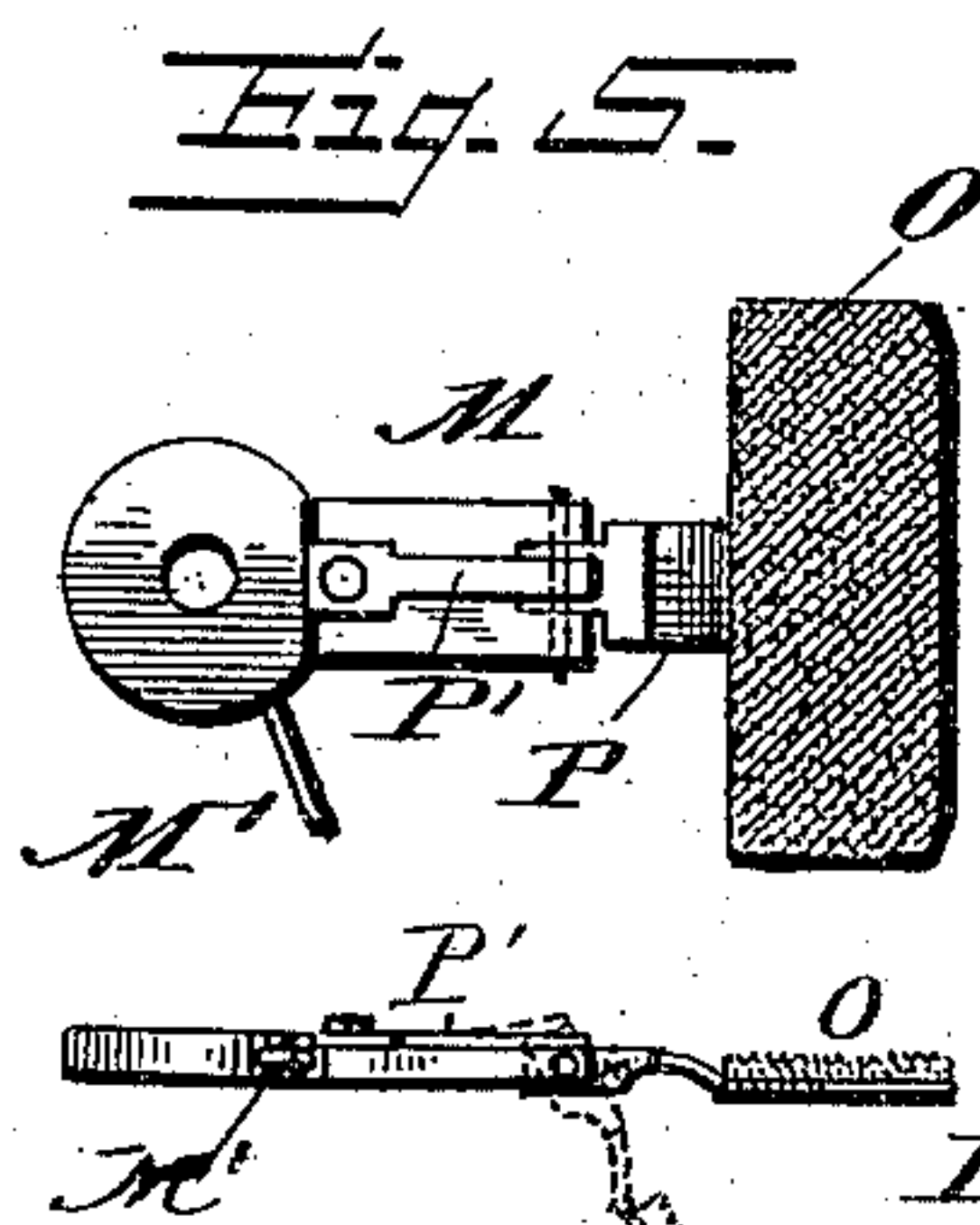
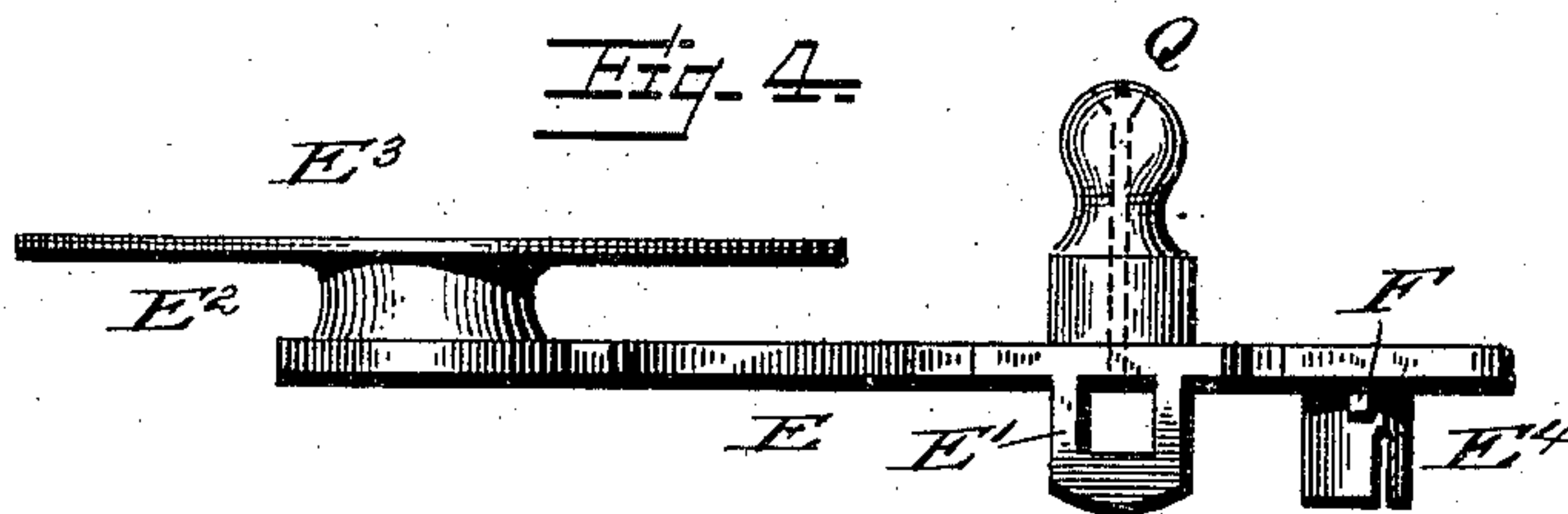
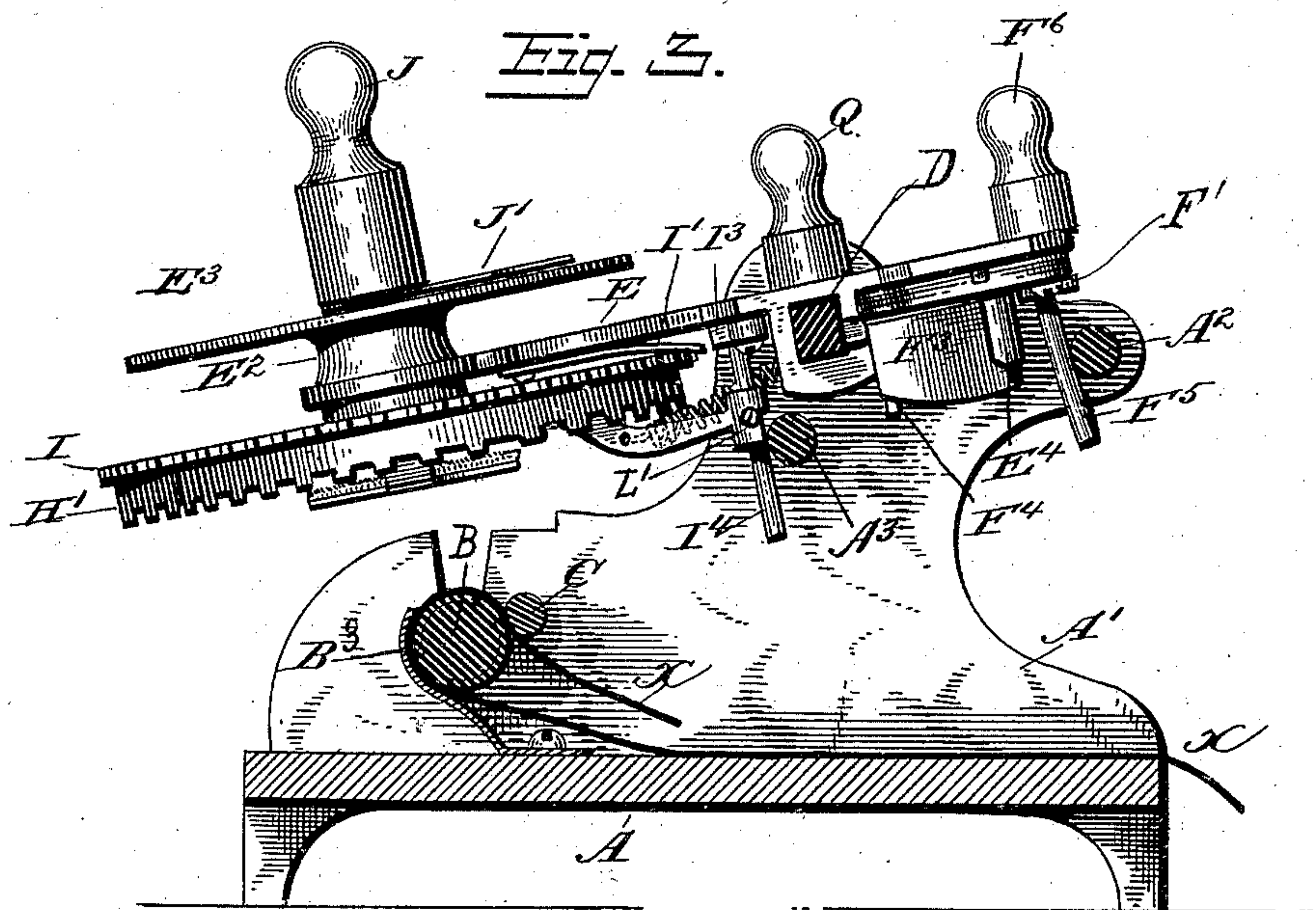
2 Sheets—Sheet 2.

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WITNESSES:

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L. C. Hills  
Wm S. Durall

 - *E<sup>4</sup>* INVENTOR  
Charles Spiro,  
BY *E. B. Stocking*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

CHARLES SPIRO, OF NEW YORK, N. Y.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 344,143, dated June 22, 1886.

Application filed September 22, 1885. Serial No. 177,810. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES SPIRO, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to that class of type-writing machines which comprise a disk having printing-characters at or near its periphery and mounted for rotation to bring a desired character to the printing-field, toward which the disk is actuated by hand to give an impression of the character selected. The motion of the parts employed in giving the impressions has also been utilized in feeding the platen or paper-carrier to present a new printing-field for succeeding characters.

The object of my invention is to produce a machine consisting of as few parts as possible, and yet possessing the essential characteristics and capabilities of machines having a greater number of parts, so that a practical useful type-writer having substantial merit can be secured at a low cost.

In order to accomplish the object of my invention, I have peculiarly constructed and arranged the principal elements of the machine, as hereinafter described, the novel features being particularly set forth in the claims.

Referring to the drawings, Figure 1 is a plan of a type-writing machine constructed in accordance with my invention, one end of the machine being broken off. Fig. 2 is a plan of the under side of the principal elements involved in the printing, inking, and feeding mechanisms of the machine. Fig. 3 is a side elevation of the printing, feeding, and inking mechanisms, the remaining portions of the machine being shown in vertical section. Fig. 4 is a side elevation of the bracket and dial. Fig. 5 is a plan and side elevation of the inking mechanism. Fig. 6 is a plan of the principal lever of the feeding mechanism; and Fig. 7 is a side elevation of a simplified bracket.

Like letters indicate like parts in all the figures.

The object of the invention being, as before

stated, simplicity, cheapness, serviceability, and the possession of the substantial merits of higher-priced machines, I make material progress toward that object by constructing the frame-work of the machine in a single casting comprising the bed A, end brackets, A', and tie-bars A<sup>2</sup> A<sup>3</sup>. If desired, (and it may be preferable,) the tie-bars A<sup>2</sup> A<sup>3</sup> may be of separate pieces, bars, or rods secured to or in the brackets in any suitable manner. A platen, B, having pawl and ratchet line-spacing mechanism B' and thumb-nut B<sup>2</sup>, is mounted in the brackets and partially encircled by a guide-plate, B<sup>3</sup>, these parts being for the reception and feeding of the paper, as usual. A guide-rod, C, having a handle, C', is passed through the brackets, and serves to hold the paper X upon the platen. Between the tie-bars is arranged a feed rack-bar, D, which is mounted pivotally by means of screws D', threaded in the brackets and projecting into the ends of the rack-bar. A projection, D<sup>2</sup>, on the rack-bar, by coming into contact with a similar projection, D<sup>3</sup>, on the bracket, limits the oscillation of the bar in one direction. Upon the rack-bar is mounted a bracket, E, having a sleeve, E', perforated to embrace the rack-bar, the perforation being in this instance rectangular, as is the rack-bar, in cross-section. Other forms of perforations and rack-bars may be employed, either polygonal in cross-section or circular, with a groove or fin co-operating with a fin or groove in the sleeve.

Projecting from the bracket is a post, E<sup>1</sup>, and at the opposite end of the bracket a hub, E<sup>2</sup>, is formed, upon which, in one instance, is mounted the dial E<sup>3</sup>, while in the other instance (see Fig. 7) the bracket itself is constructed as a disk or dial, E<sup>3</sup>, the hub E<sup>2</sup> being arranged on the under side thereof.

At one end of the bracket and above the rack-bar is arranged the feeding mechanism, which comprises a lever, F, pivoted at F', and extended to form a check-pawl, F<sup>2</sup>, which, by means of a spring, F<sup>3</sup>, secured at one end to the stud E<sup>4</sup>, is forced into contact with the rack-bar. To the lever F is pivotally secured the feed-pawl G, which, by means of the spring G', is forced into contact with the rack-bar when not otherwise influenced. The spring F<sup>3</sup> being wide, bears upon a pin, F<sup>4</sup>, projecting



from the check-pawl  $F^2$ . It is evident that the spring may project upon the check-pawl, thus obviating the use of the pin.

The printing device is a disk, H, having a depending flange,  $H'$ , on the lower edge of which are arranged the printing-characters, the disk being secured to the locking-wheel I by screws  $H^2$ , therefore permitting of the substitution of different printing-characters. The locking-wheel I is acted upon by the usual spring-detent,  $I'$ , (see Fig. 3,) secured to the under surface of the bracket and projecting between the teeth of the locking-wheel, as usual. The locking-lever  $I^2$ , having the detent  $I^3$ , is pivoted at  $I^3$  to the bracket below the sleeve. Projecting downwardly from the lever  $I^2$  is an arm or rod,  $I^4$ , to which is secured an inker-operating arm, L, which is bifurcated at its end; or it may be otherwise adapted to be pivotally connected with the arm  $M'$ , projecting from the pivoted end of the inking-arm M, which is rotatably secured by the screw N.

The inking-pad O is mounted on the pad-carrier P, pivoted to the free end of the arm M. A spring,  $P'$ , normally presses upon the carrier upon one side of its pivot, so as to permit the carrier to be depressed, as shown by dotted lines, for the purpose of applying ink to the pad, and so as to yieldingly hold the pad in contact with the printing-characters.

A coiled spring, K, is connected with the arm L, and with the sleeve  $E'$ , as clearly shown in Fig. 2.

J represents a handle, and  $J'$  a pointer attached to the usual vertical shaft of the printing-disk and locking-wheel, whereby these parts may be rotated for the selection and presentation of a desired character at the printing-field of the machine.

$E^6$  represents a handle projecting upwardly from the free end of the check-pawl lever F. From the opposite side of the lever there is a downwardly-projecting rod,  $F^5$ . The rod  $I^4$  is adjacent to the tie-bar  $A^3$  and the rod  $F^5$  is adjacent to the tie-bar  $A^2$ .

The rack-bar is provided with numbers increasing from left to right, which serve the purpose of determining the point of commencement of a line of printed matter upon the platen.

The inker-operating lever L is mounted upon the rod  $I^4$  by means of the set-screw  $L'$ , so that by securing the lever to the rod in different positions the ink-pad may be made to oscillate in contact with printing-characters more or less near the printing field, as desired. A stop,  $F^7$ , serves to limit the movement of the lever F in one direction.

This being the construction, the operation is as follows: The machine in its normal position is clearly shown in Fig. 3, where the printing-disk is sustained in an elevated position above the platen by means of the reaction of the spring  $F^3$ , bearing upon the check-pawl  $F^2$  and against the stud  $E^4$ , so that the free end of the check-pawl lever and its rod  $F^5$  is pressed

against the tie-bar  $A^2$ , the stops  $D^2$   $D^3$  determining the limit of the depression of the upper end of the bracket, and therefore the elevation of its lower end. By means of the handle J the pointer  $J'$  is turned until it indicates a desired character, and force is applied in the desired direction on said handle, so as to depress that end of the bracket at which the handle is located. Such depression causes the rack-bar to oscillate or rock upon its pivots and the rod  $F^5$  to bear against the tie-bar  $A^2$ . The upper end of the bracket moving in a circle the center of which is the center of the rack-bar, the rod  $F^5$  causes the handle  $F^6$  and the free end of the check-pawl lever, to which it is secured, to move away from the rod  $A^2$ , by reason of the constant contact of rod  $F^5$  with rod  $A^2$ , the former being bent under the latter, so as to lift the check-pawl  $F^2$  out of connection with the rack-bar and against the pressure of the spring  $F^3$ . This movement of the free end of the lever F draws the pawl G to the right, Fig. 1, and upon the sleeve  $E'$ , and out of connection with the rack-bar, and over a distance of one tooth thereof. By the same depression of the bracket the rod  $I^4$ , bearing against the tie-bar  $A^3$ , causes the lever  $I^2$  to move into a position away from the sleeve, and substantially indicated by the dotted line a, Fig. 2. This causes the lever L to take the position of dotted line b, the arm  $M'$  to take the position of dotted line c, and the inker arm and pad to take the position indicated by dotted line d, thus removing the pad from over the printing-field, and at the same time distributing ink upon the character to be employed and the characters adjacent thereto. When the power applied to depress the printing-disk is removed, the reaction of the spring  $F^3$  upon the check-pawl  $F^2$  elevates the bracket to the position shown in Fig. 3, while the spring K, acting upon the arm L, returns the inking mechanism and the locking-lever  $I^2$  to their normal positions. When the printing-disk is depressed, the locking-lug  $I^3$  enters between the teeth of the locking-wheel to secure a proper alignment of the work. A stud, Q, may be secured by a screw or otherwise to the bracket just over the rack-bar sleeve, so that by placing a thumb against the same, and by means of a finger depressing the handle  $F^6$ , the check-pawl lever may be depressed, so as to throw both pawls entirely out of connection with the rack-bar, and thus permit of a movement of the carriage from right to left to begin a new line of work. This stud Q may, however, be entirely dispensed with and the thumb be placed against the handle J, while the finger depresses the handle  $F^6$ , for the purpose described. I therefore illustrate in Fig. 7 the bracket without a stud thereon for the purpose mentioned.

Having thus fully described my invention and its operation, what I claim is—

1. The combination of a frame-work having a tie-bar, a rocking rack-bar parallel with the tie-bar, a bracket mounted thereon and carrying



a type-disk and a check-pawl lever, the free end of which is provided with a depending rod having contact with said tie-bar, and a pawl-spring, substantially as specified.

5 2. The combination of a tie-bar, a parallel rocking rack-bar, a type-disk-carrying bracket mounted thereon and carrying a check-pawl lever having a depending rod adjacent to the tie-bar and a feed-pawl pivotally attached to  
10 the check-pawl lever and pawl-spring, substantially as specified.

3. The combination of an oscillating rack-bar, a bracket mounted thereon and carrying a type-wheel and a locking-wheel, a type-bar  
15 parallel to the rack-bar, and a locking-lever having a depending rod, substantially as specified.

4. The combination of a rocking rack-bar, a type-disk-carrying bracket mounted thereon  
20 and carrying a feeding-pawl, and its operating-lever having a depending rod, a locking-wheel, and a locking-lever having a depending rod and parallel tie-bars, substantially as specified.

5. The combination of a rocking rack-bar, a  
25 bracket mounted thereon and carrying a locking-wheel and printing-disk, a lever having a depending rod, an inker-operating arm secured to said rod, and an oscillating inker, substantially as specified.

6. The combination of a rocking rack-bar, a  
30 bracket mounted thereon and carrying a printing-disk, a dial and pointer, a feeding spring and pawl pivoted to a lever having a depending

rod, and a tie-bar parallel with the rack-bar, substantially as specified.

7. The combination of the bar D, the tie-bar  
35  $A^2$ , the bracket E, having the sleeve  $E'$  and stud  $E^1$ , the spring  $F^3$  and the check-pawl lever F, and the spring  $G'$  and pawl G, substantially as shown and described.

8. The combination of the bar D, the tie-bars  
40  $A^2 A^3$ , the bracket E, having the sleeve  $E'$ , the locking-wheel I, the lever  $I^2$ , having the lug  $I^3$ , and the rod  $I^1$ , substantially as shown and described.

9. The combination of the bracket E, lever  
45  $I^2$ , rod  $I^1$ , tie-bar  $A^3$ , arm L, inker-arm M, having arm  $M'$ , the pad-carrier P, and the spring K, substantially as shown and described.

10. The combination of the platen B, type-  
50 disk H, locking-wheel I, locking-lever  $I^2 I^3$ , the dial  $E^3$ , the handle J, and pointer  $J'$ , with the bracket E, the rocking rack-bar D, and the tie-bar  $A^3$ , substantially as shown and described.

11. The combination, with locking-lever  $I^2$   
55  $I^3$ , having the rod  $I^1$ , of the adjustably-mounted inker-operating arm L, the inker M, and the pad-carrier P, substantially as shown and described.

In testimony whereof I affix my signature  
60 in presence of two witnesses.

CHARLES SPIRO.

Witnesses:

JULIUS E. LEVY,  
J. A. EAGAN.